

● FIG. 1a

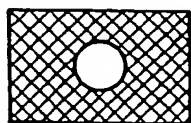


FIG. 1b

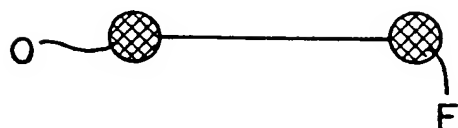


FIG. 1c

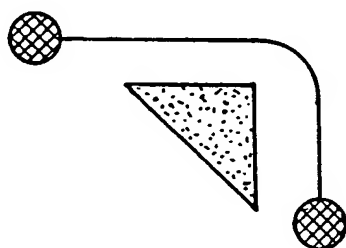


FIG. 1d



FIG. 1e

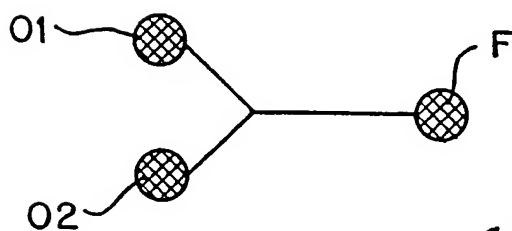


FIG. 1f

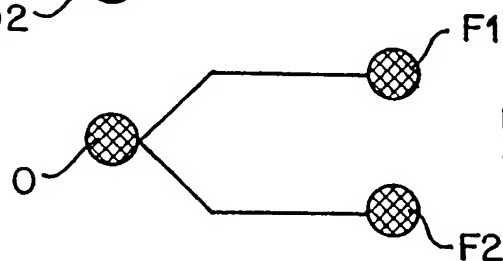


FIG. 1g

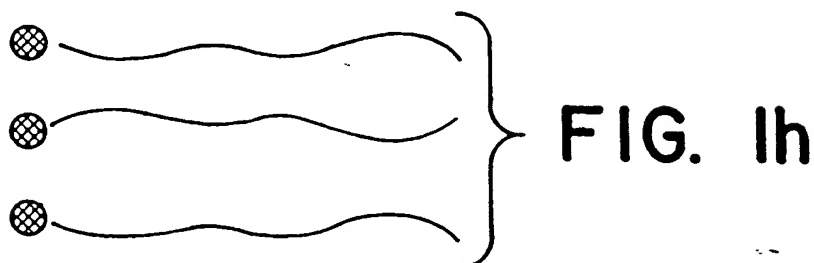


FIG. 1h

FIG. 2A

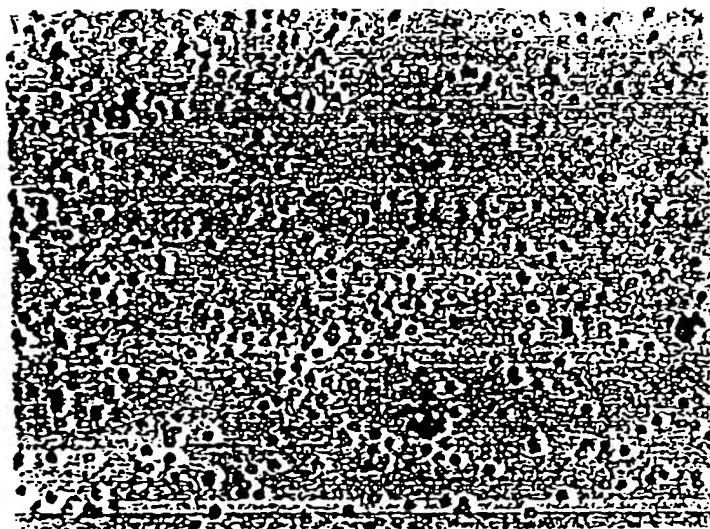


FIG. 2B

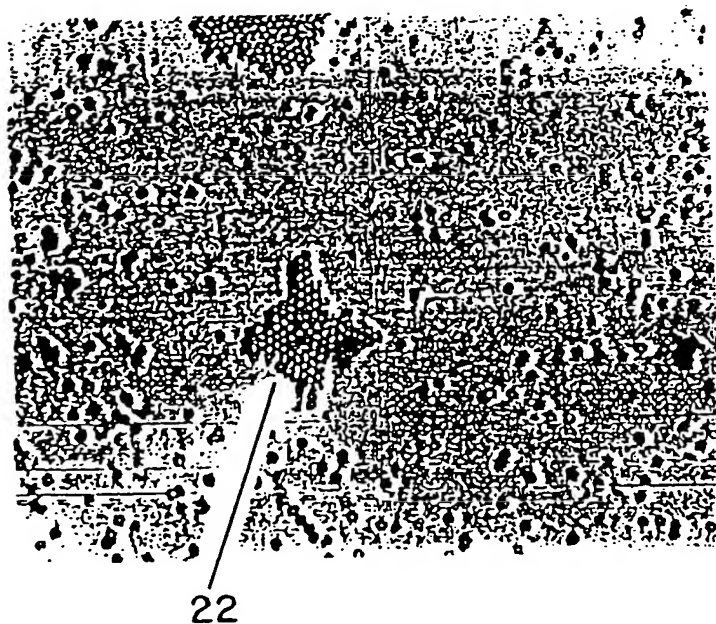


FIG. 2C

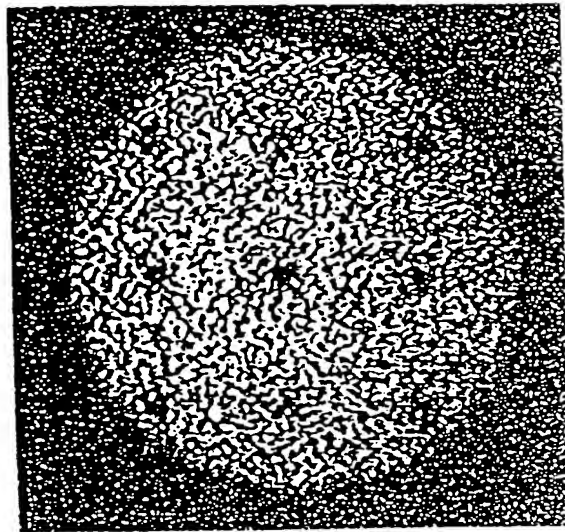


FIG. 2D

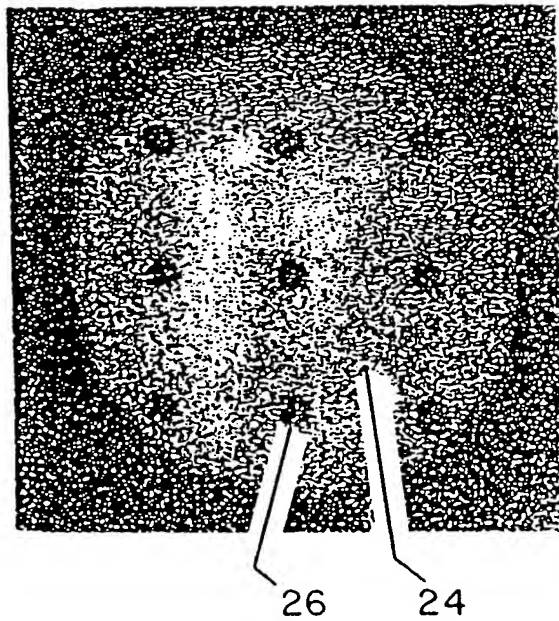


FIG. 3a

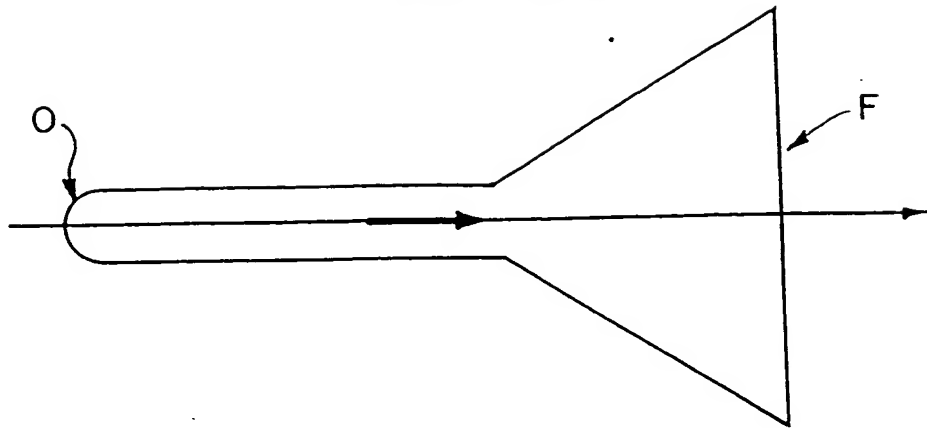


FIG. 3b

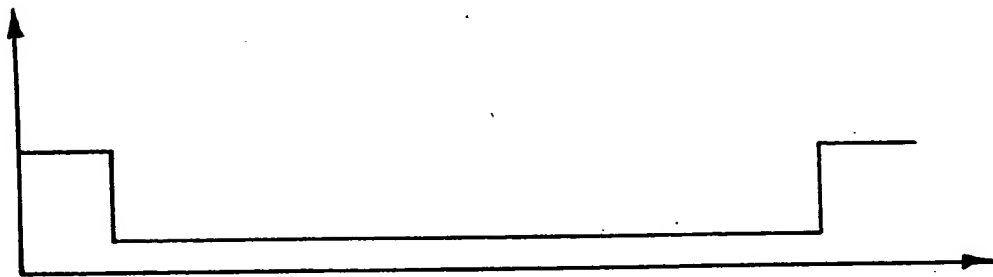


FIG. 3c

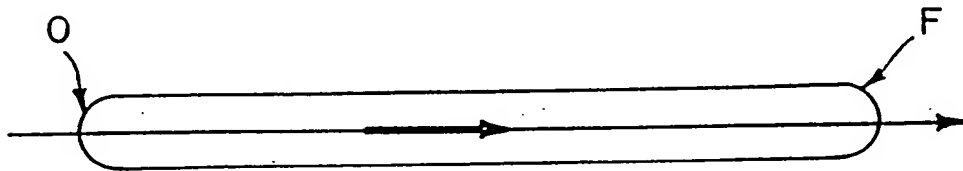


FIG. 3d



FIG. 3C

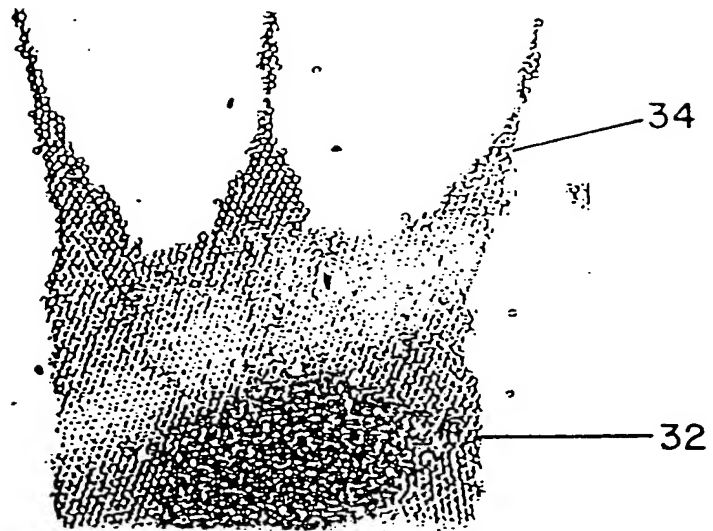


FIG. 3D

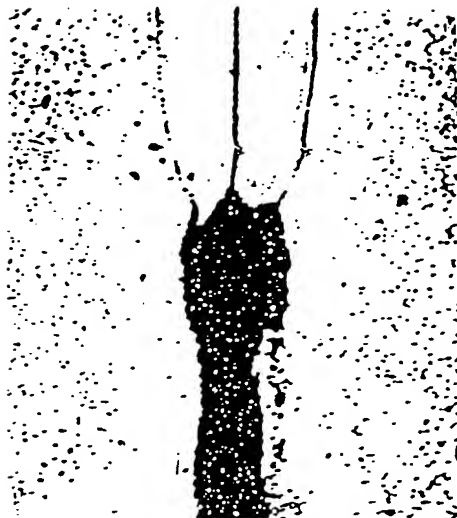


FIG. 4A

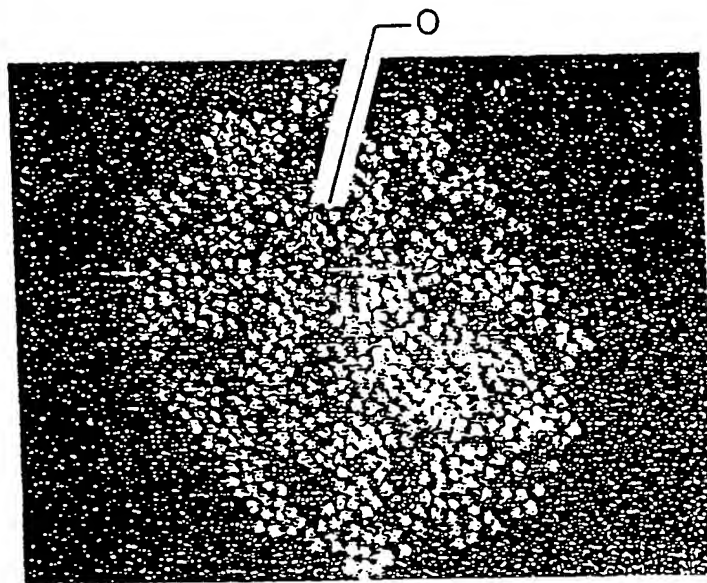


FIG. 4B

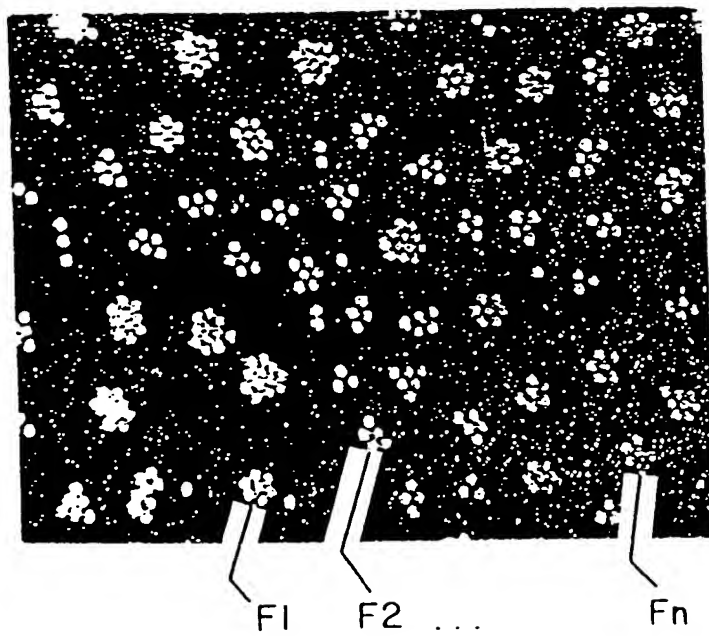


FIG. 5

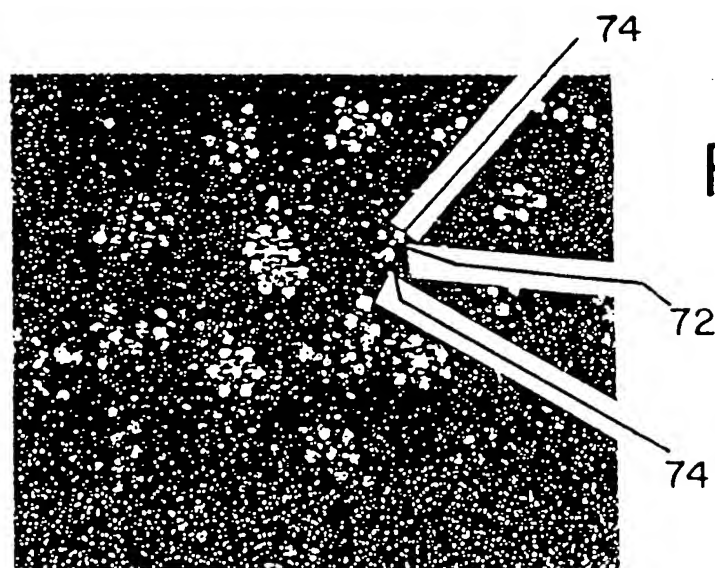
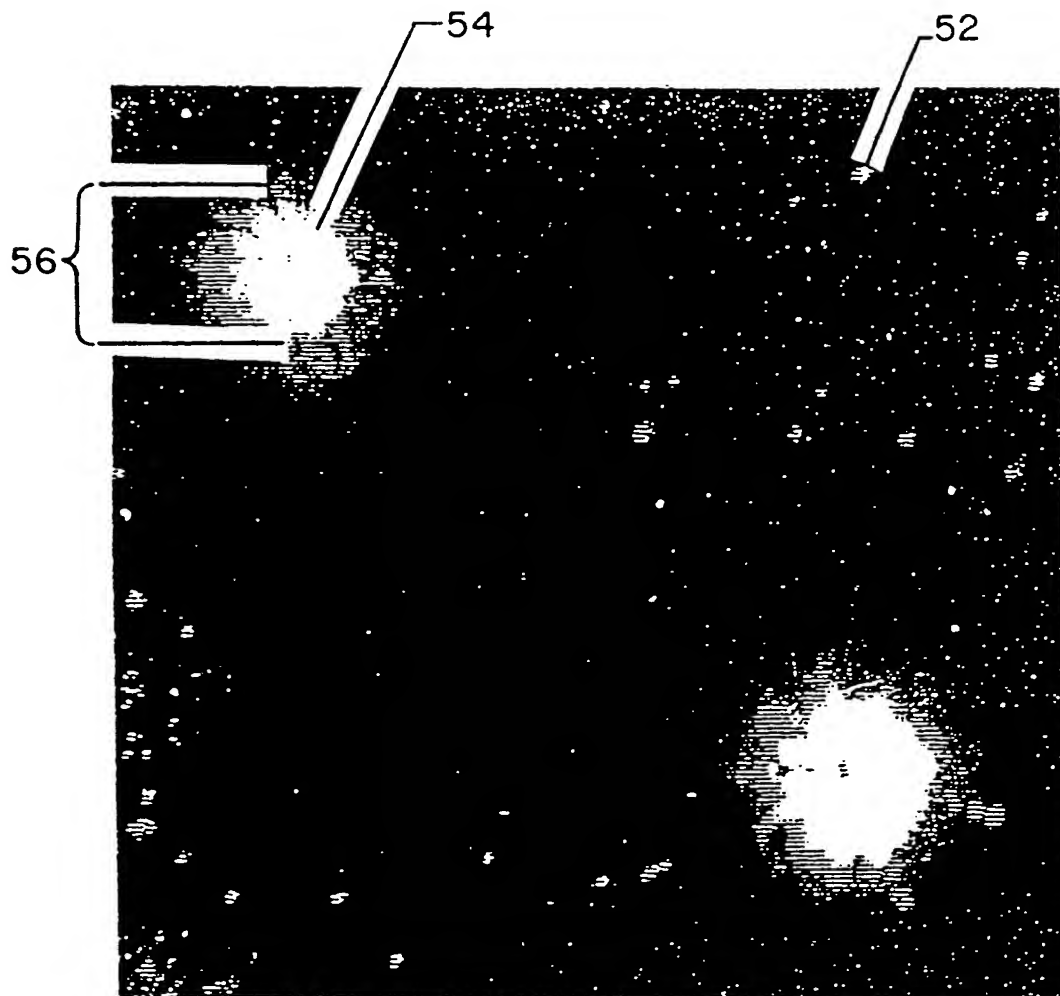


FIG. 7

FIG. 6a

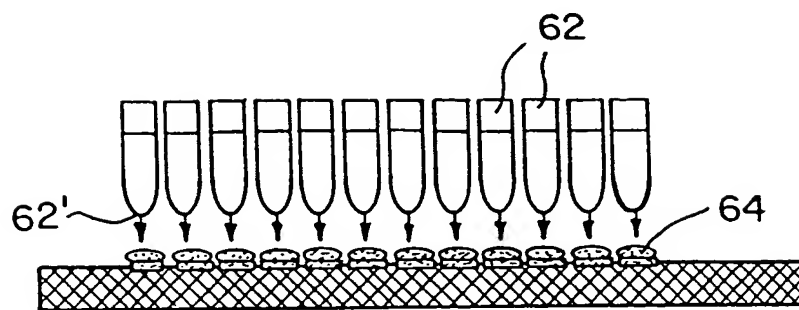


FIG. 6b

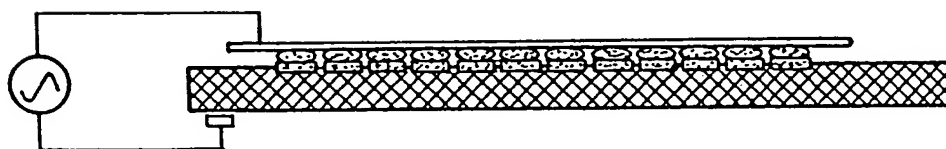


FIG. 6c

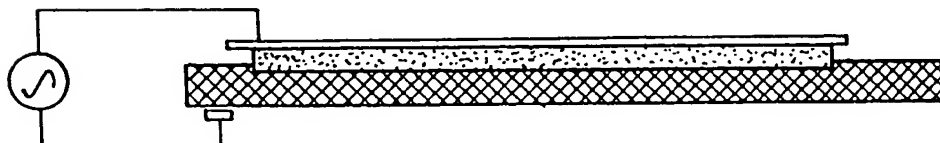


FIG. 8

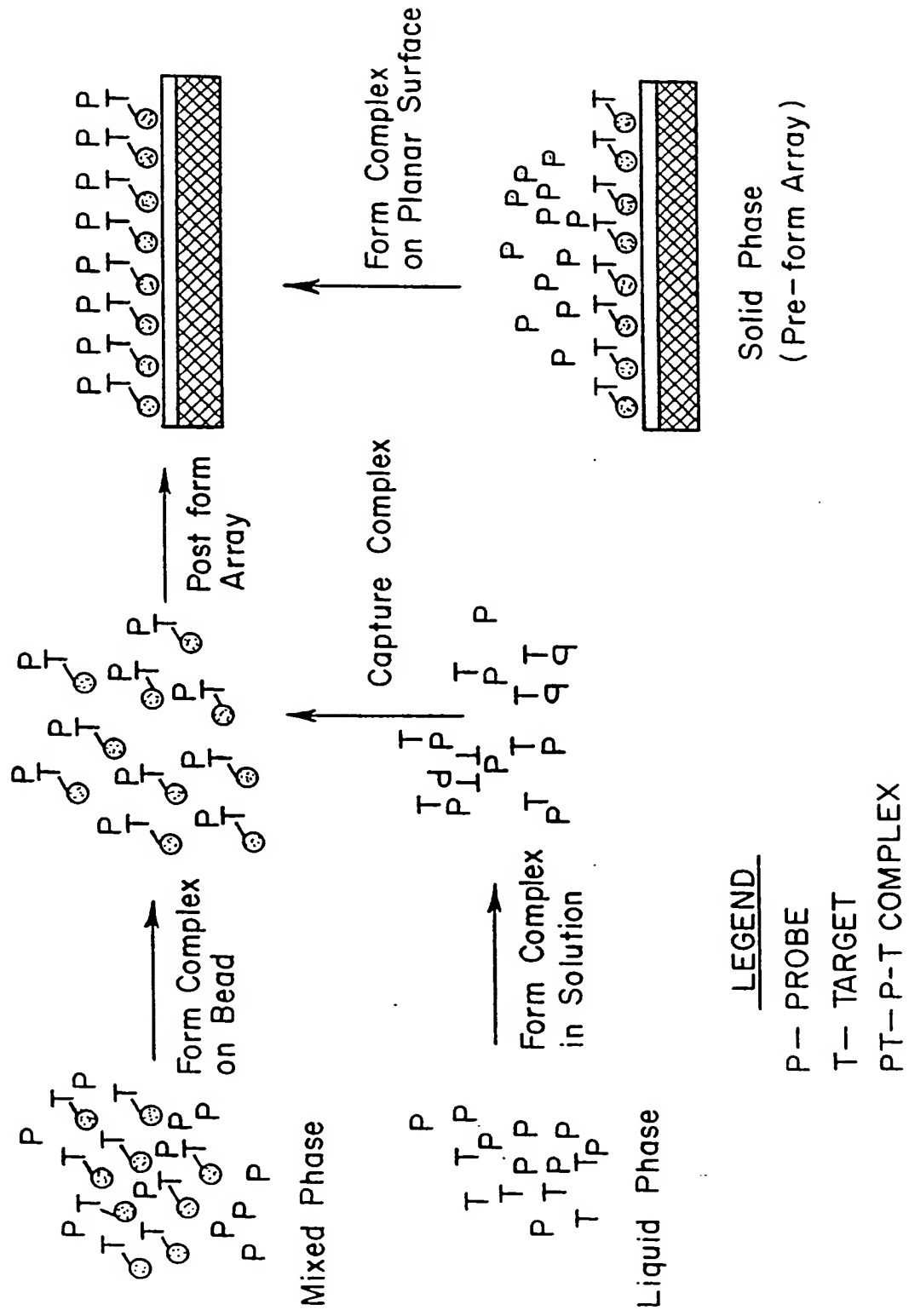


FIG. 9a

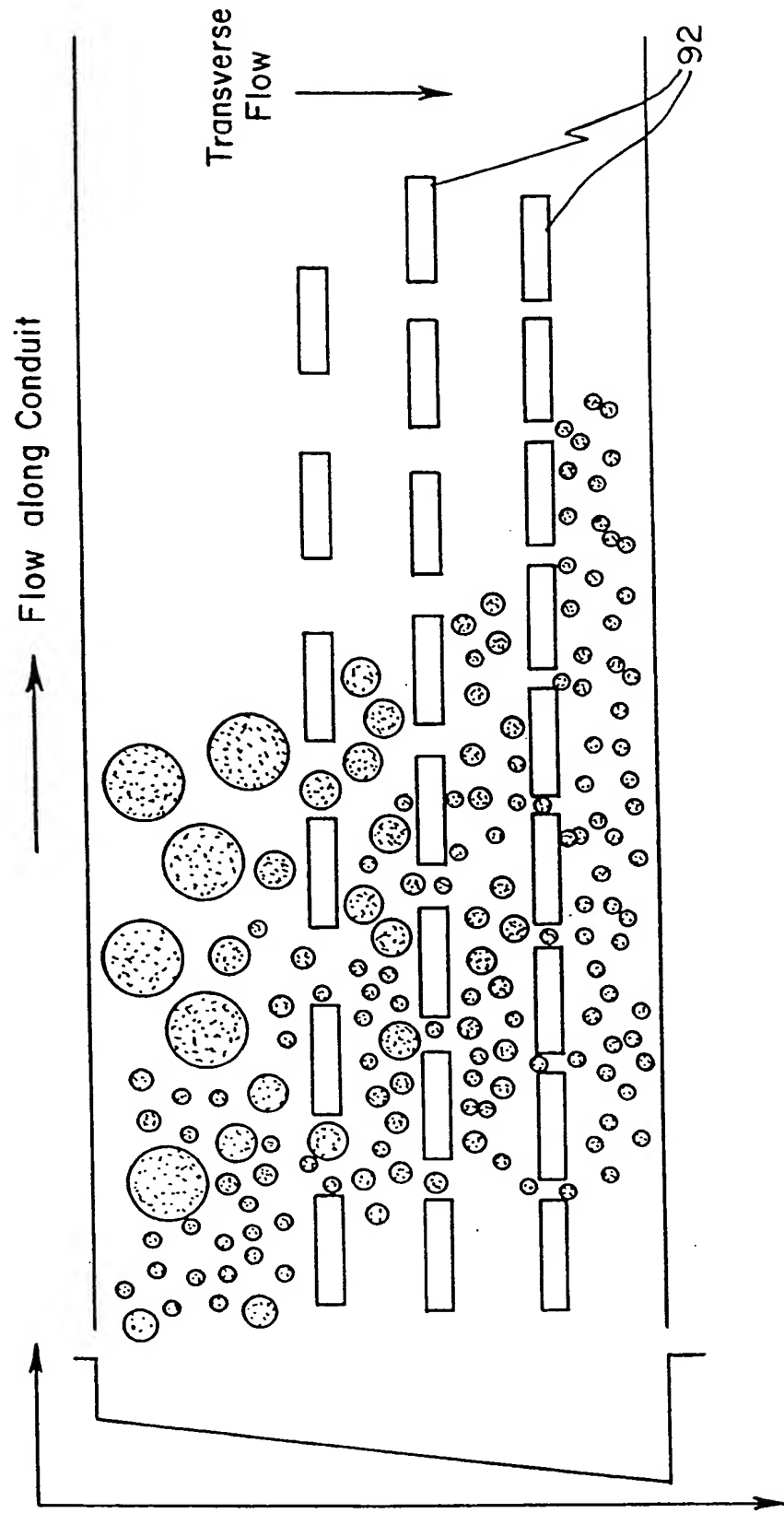


FIG. 9b

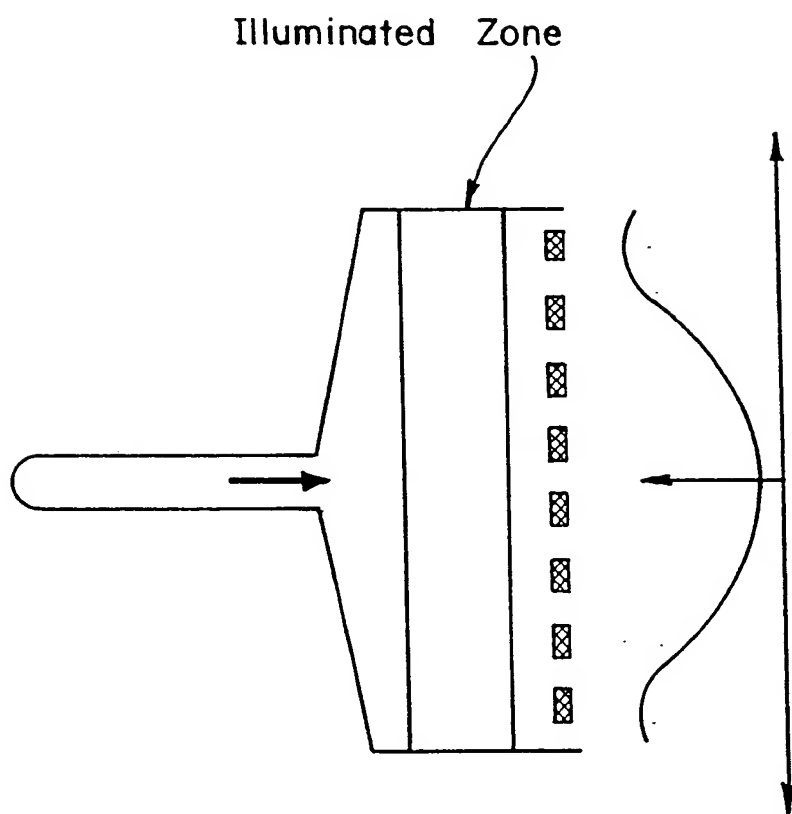


FIG. 9c



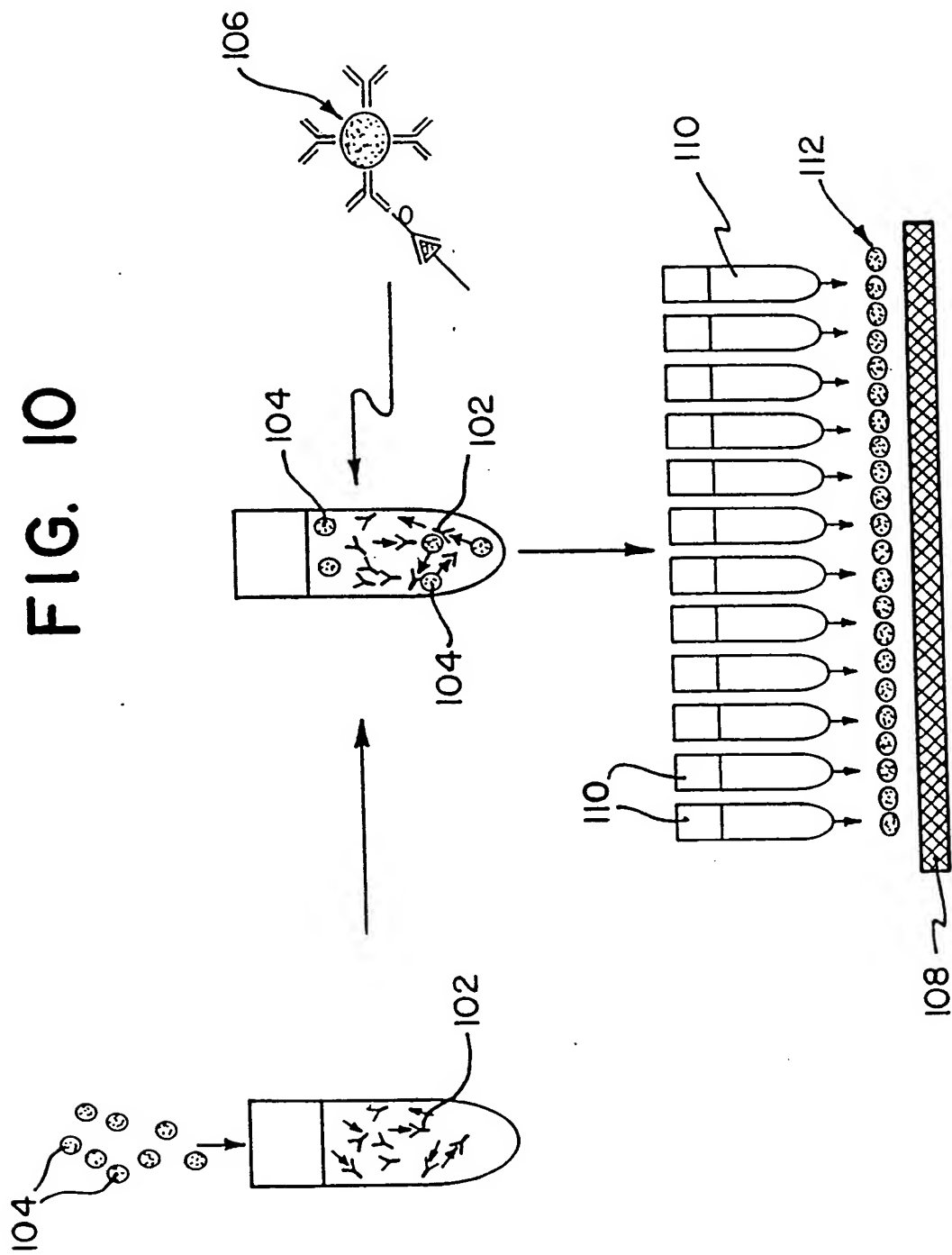


FIG. 11a

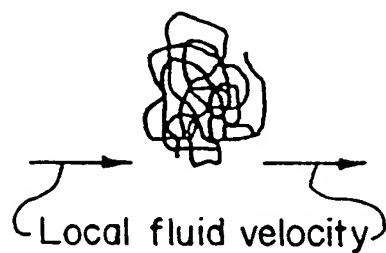


FIG. 11b

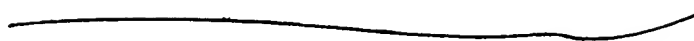


FIG. 11c

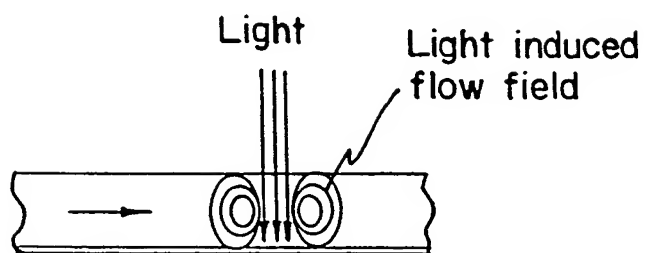


FIG. 11d

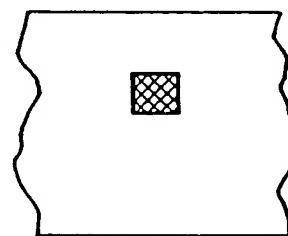
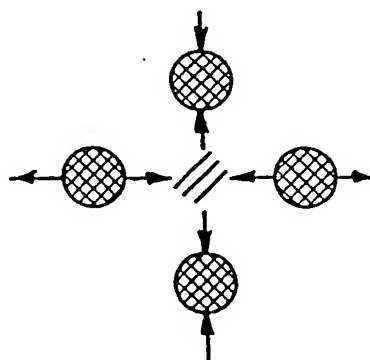


FIG. 11e





ILLUMINATION PATTERN GENERATOR

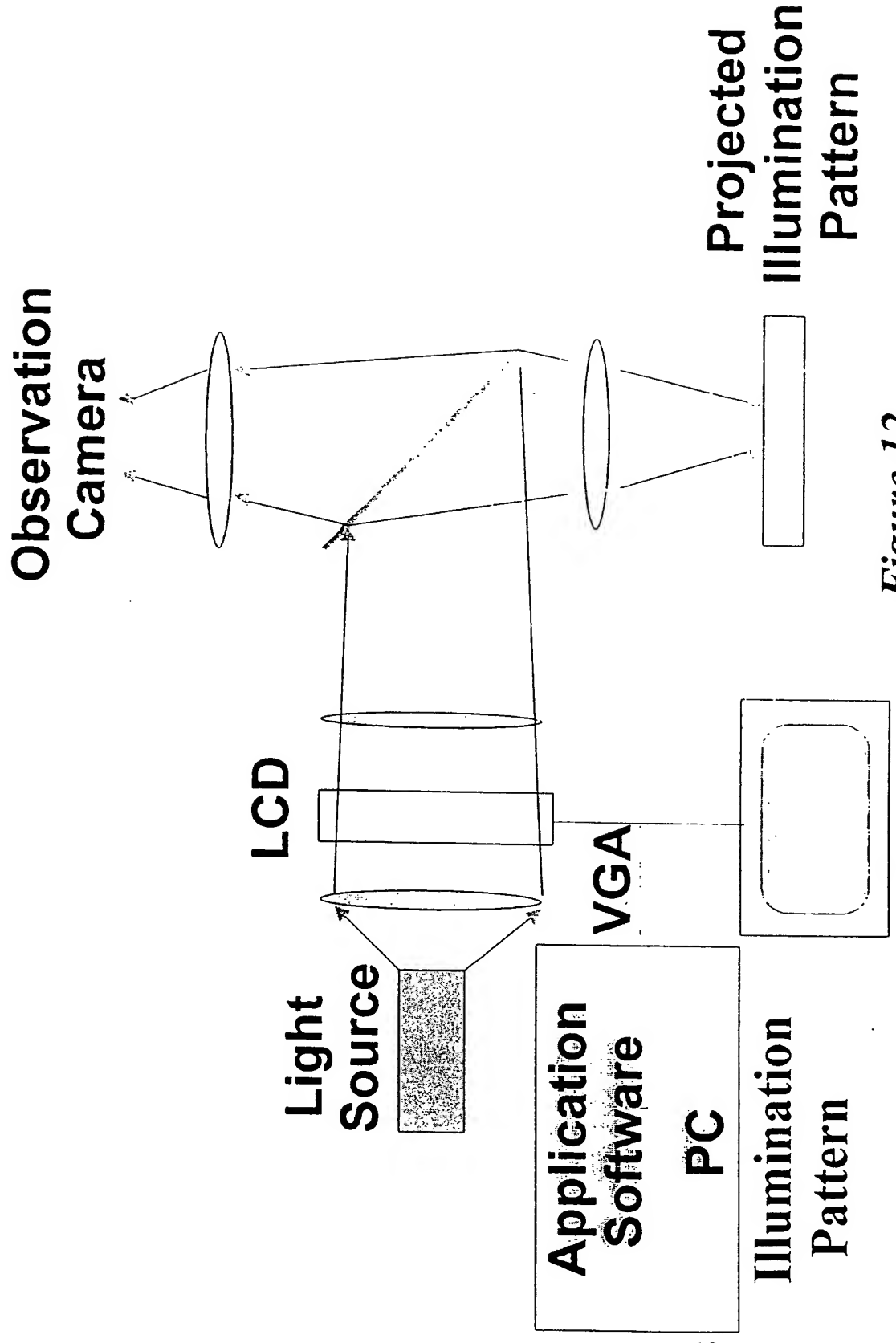
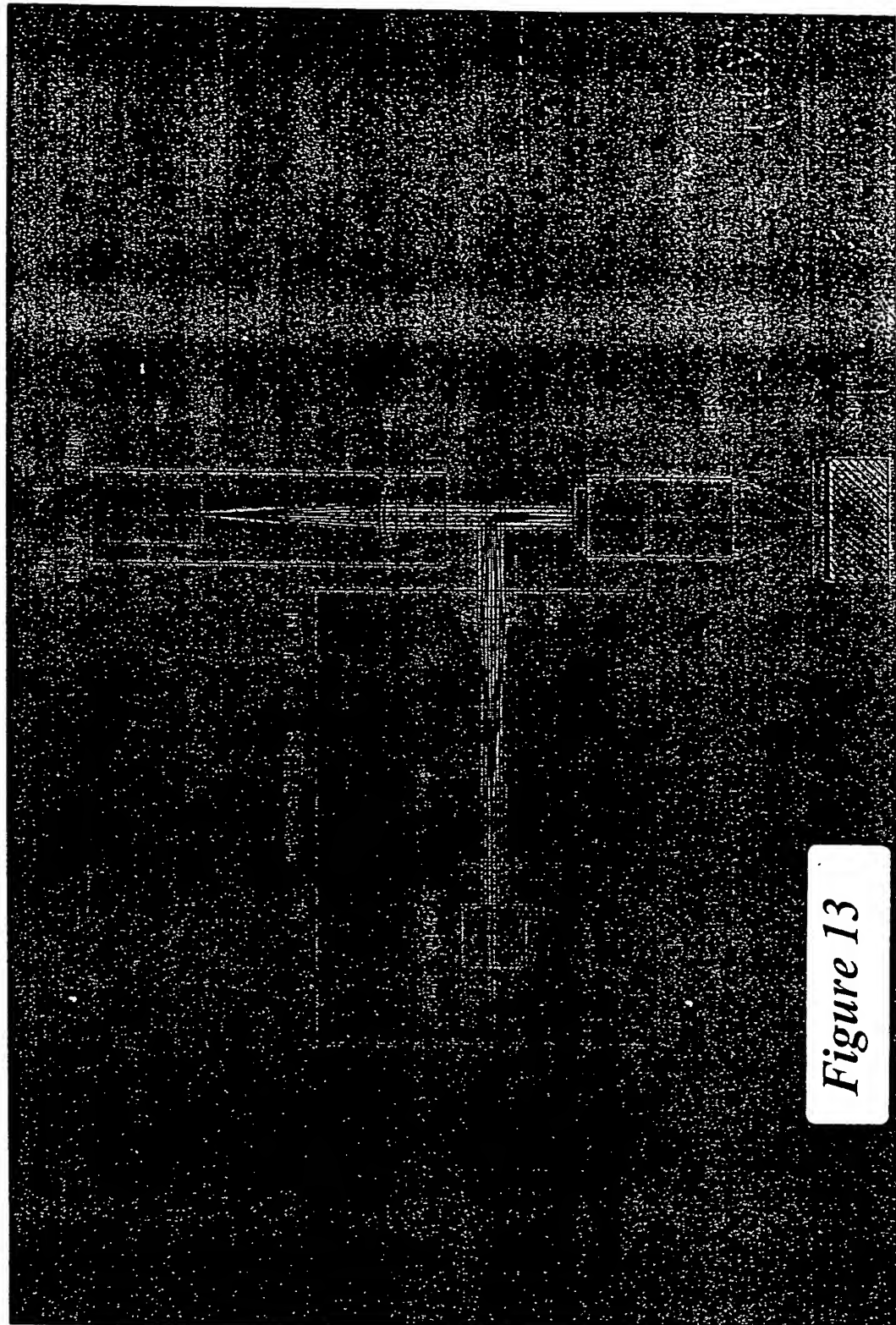


Figure 12

LCD-PARSE OPTICAL DESIGN



ARRAY SHAPE ADJUSTMENTS

CIRCLE

HORIZONTAL. LINE



Figure 14a



Figure 14c



Figure 14b



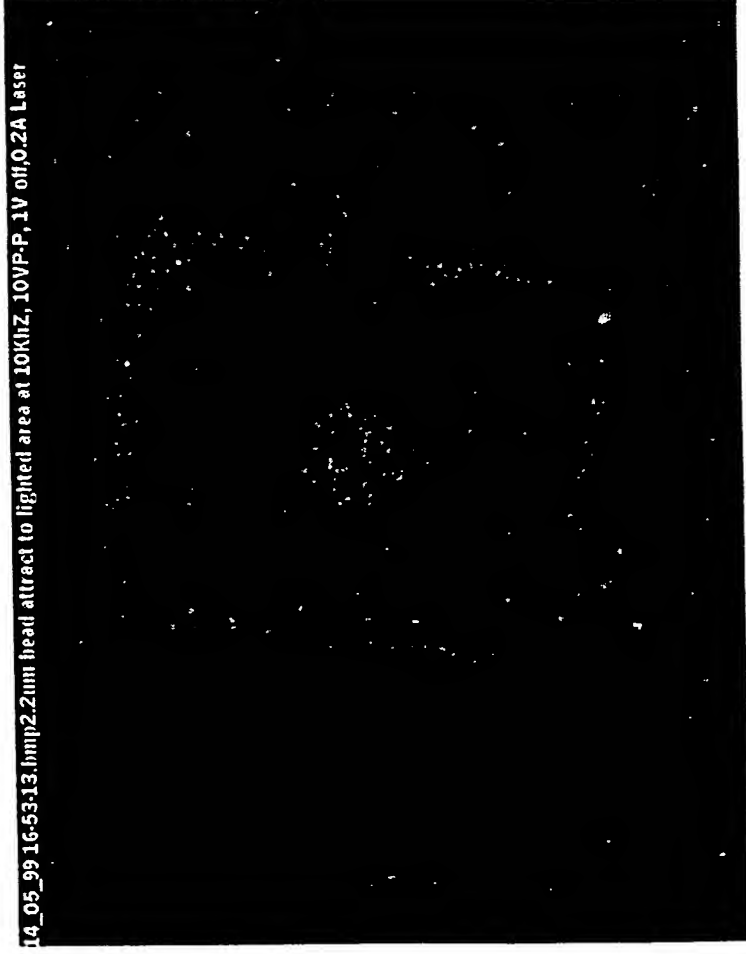
Figure 14d

VERTICAL LINE

SQUARE



COLLECTION AND ARRAY ASSEMBLY



CollectedParticles

Figure 15a

EXPULSION AND CONFINEMENT

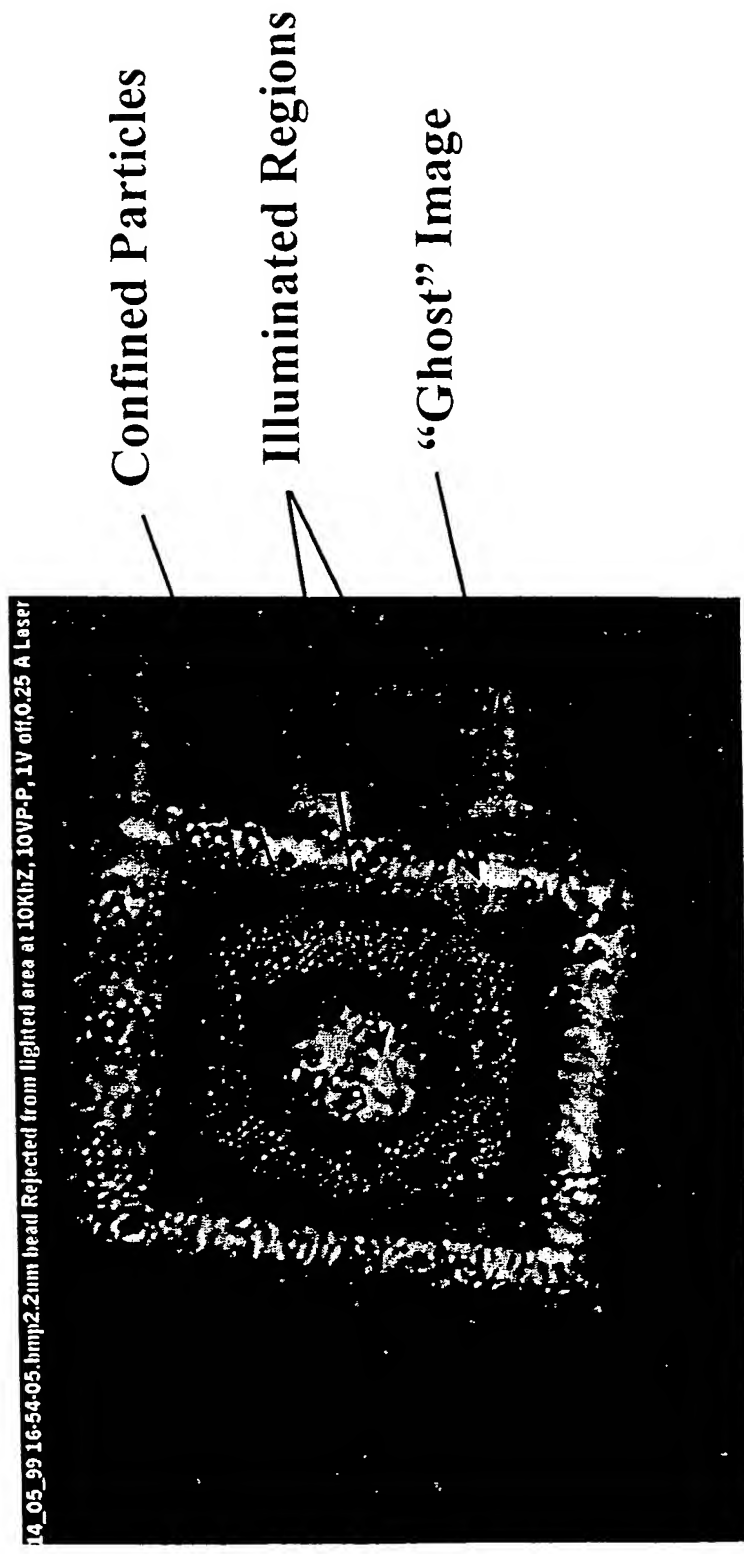


Figure 15b

DRAG AND DROP

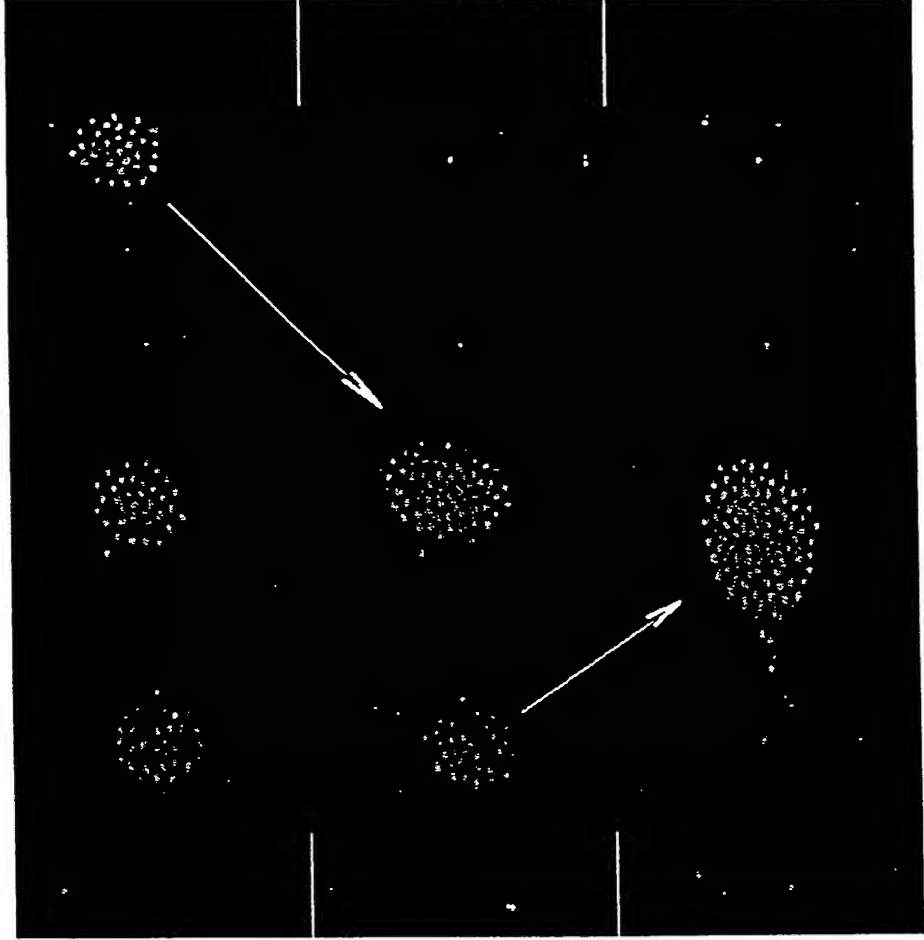


Figure 16



Programmable Array Reconfiguration and Segmentation

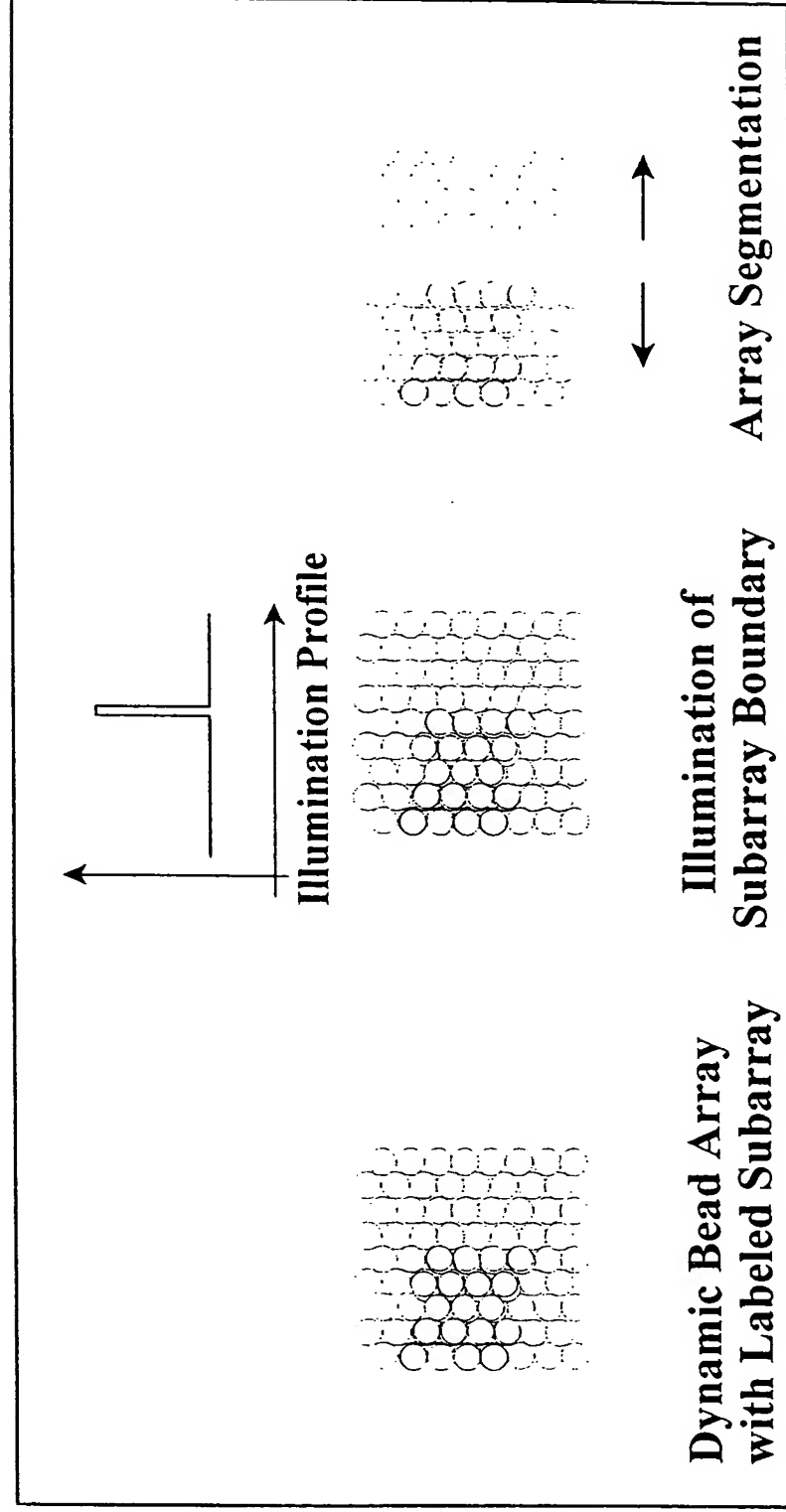


Figure 17

LCD PARSE

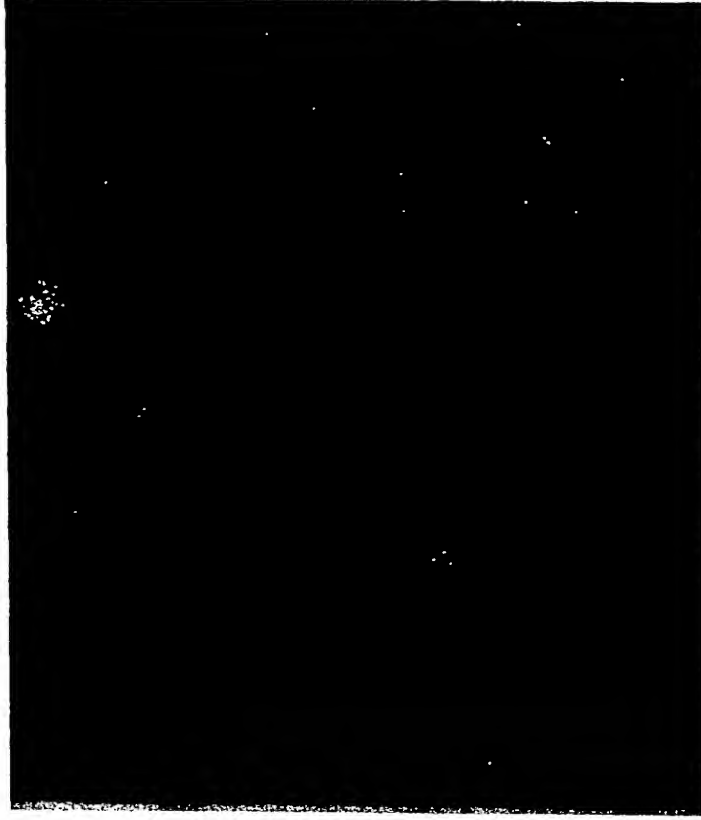


Figure 18a

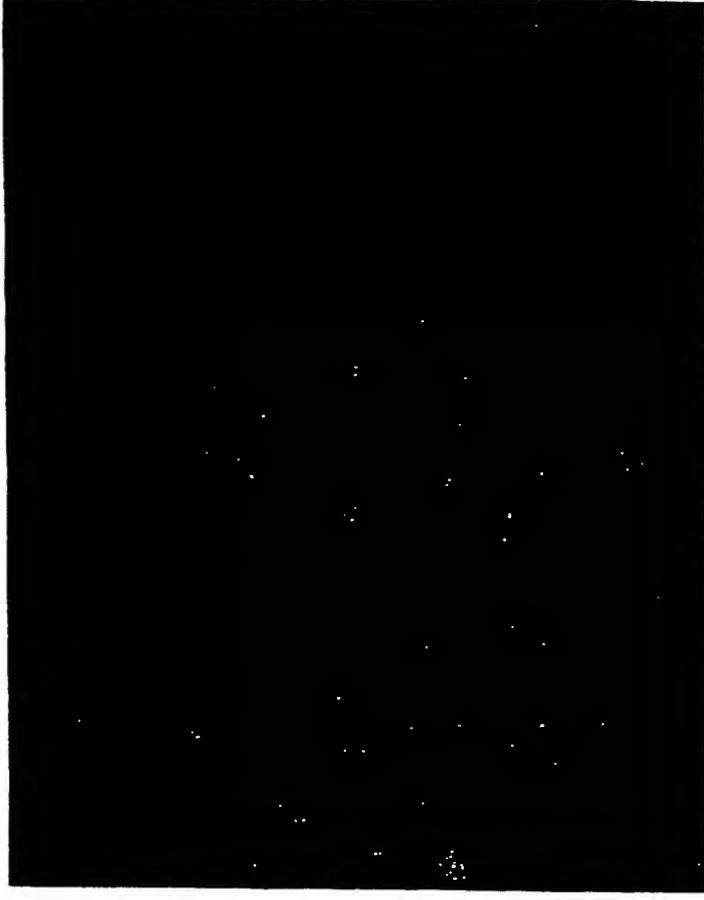


Figure 18b



LCD PARSE

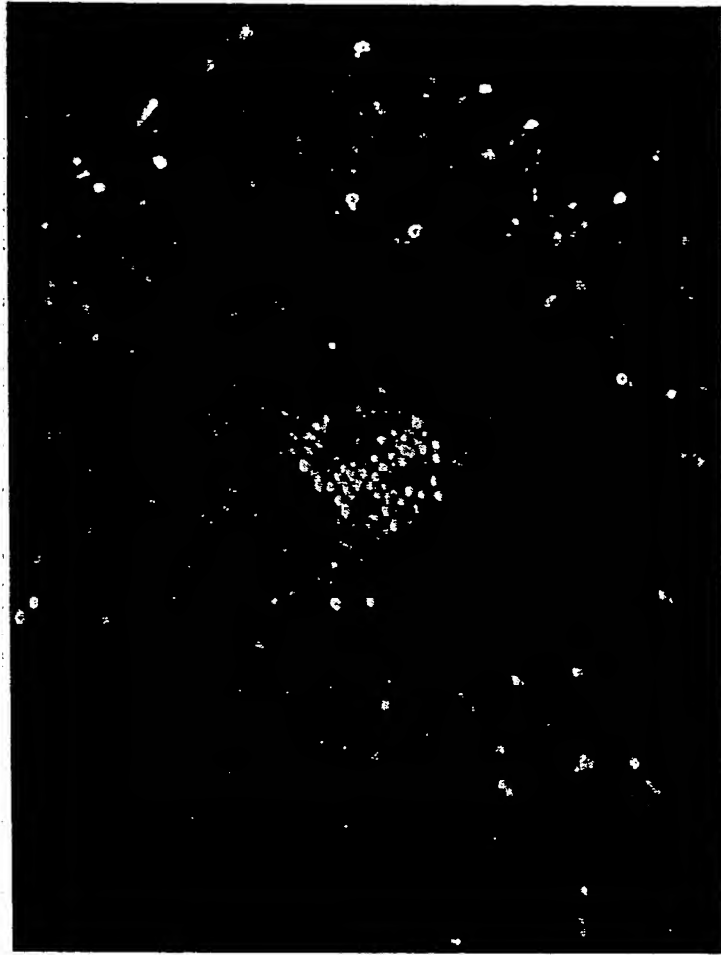
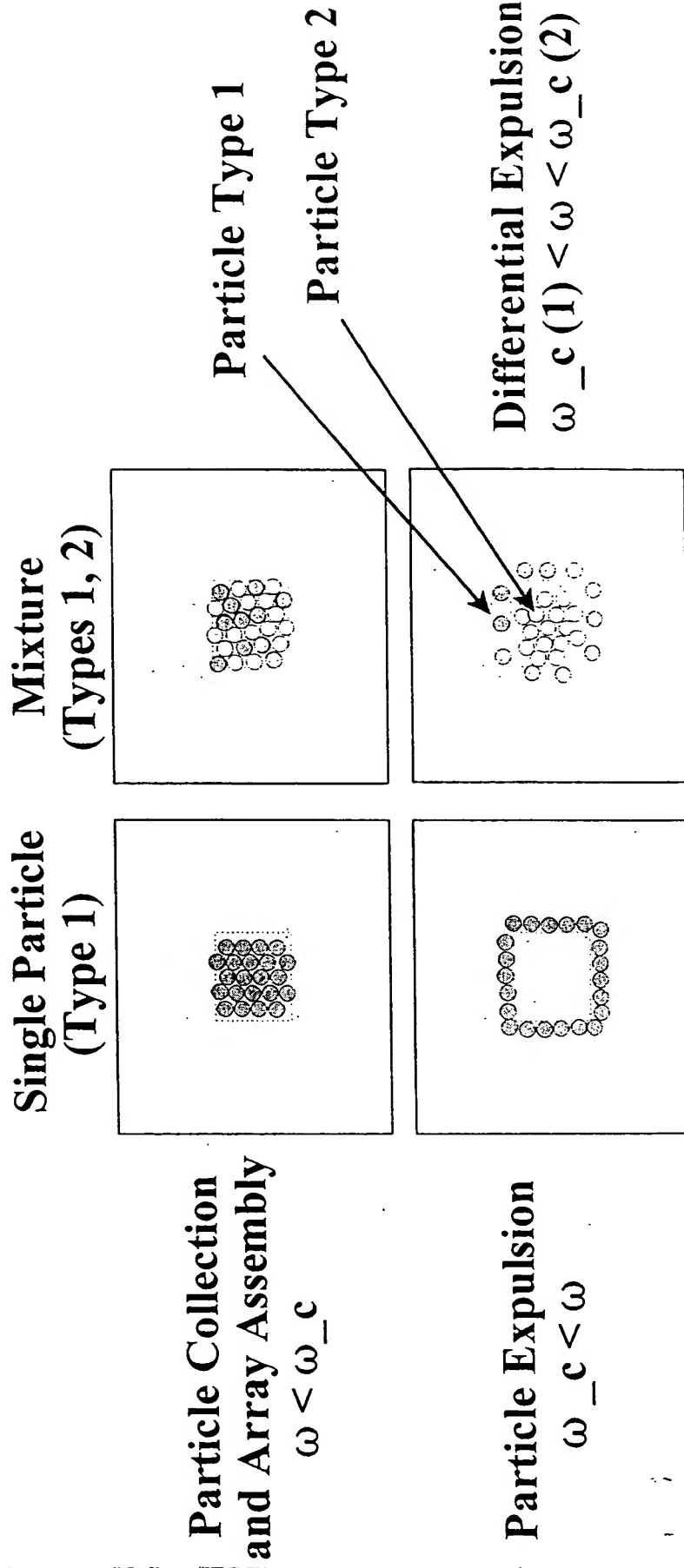


Figure 19



FRACTIONATION

Differential Frequency Dependence of Particle Expulsion
 (NOTE: ω_c denotes a characteristic frequency)



$\omega_c(\text{Type 1}) < \omega_c(\text{Type 2})$

Figure 20a

FRACTIONATION

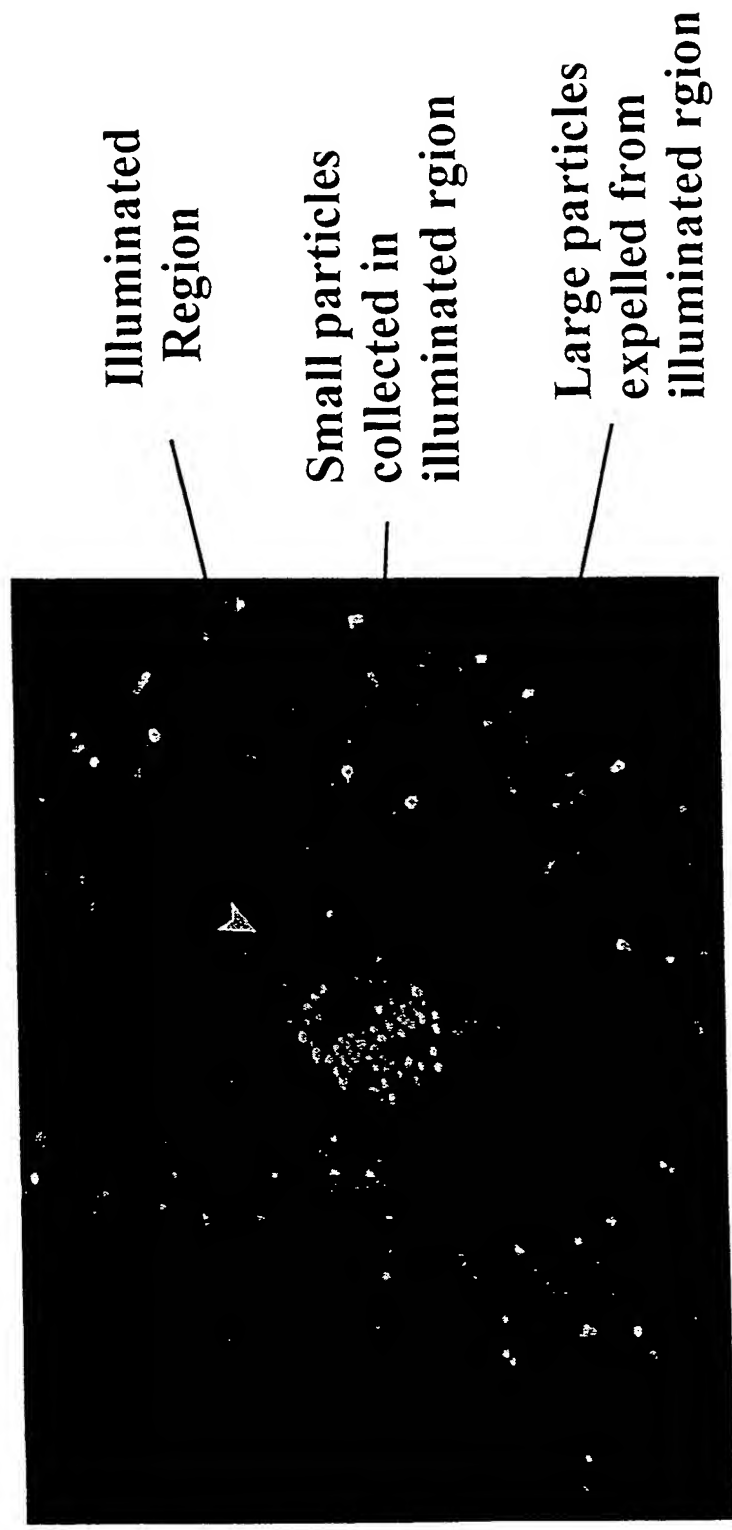
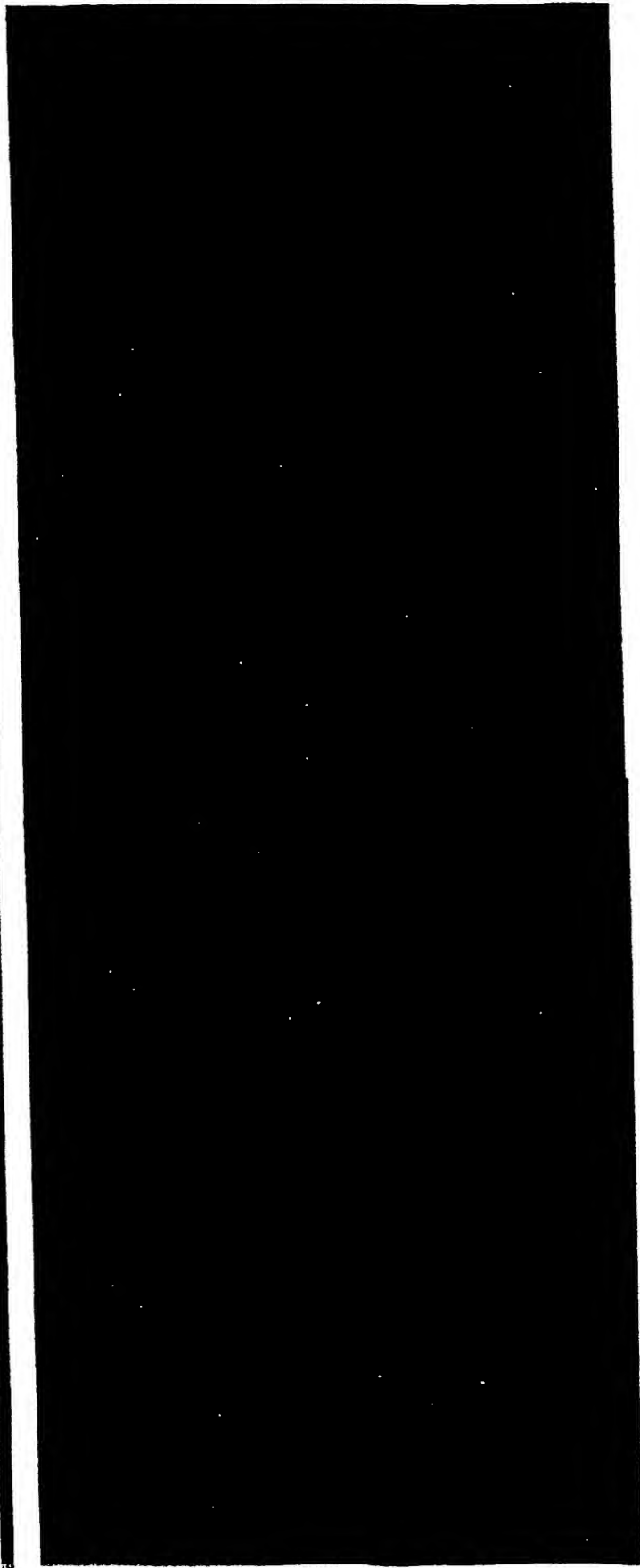


Figure 20b

LCD PARSE



10/30

Figure 21a

Figure 21b

Encoding Methodologies

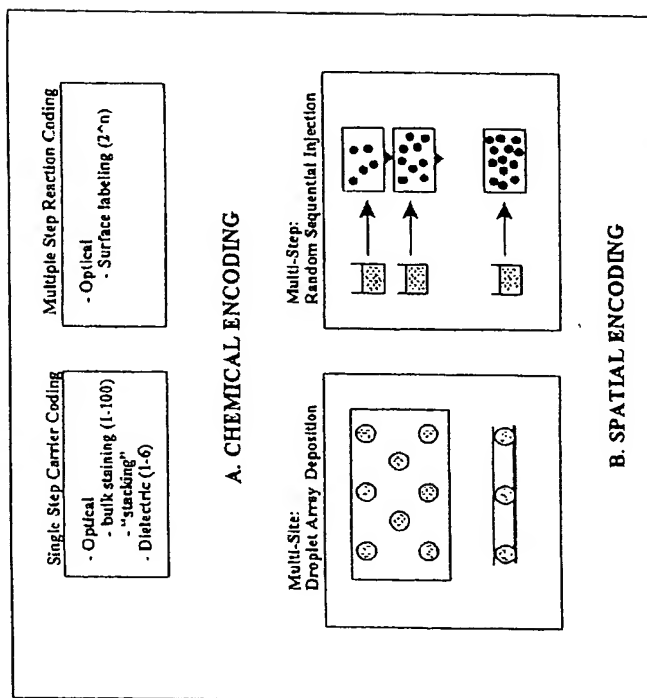


Figure 22a

1 - Pre-Processing

2 - Post-Processing

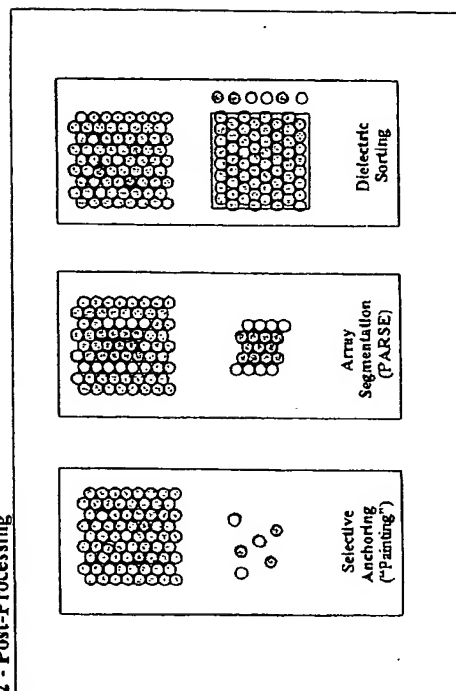


Figure 22b

RANDOM SEQUENTIAL INJECTION

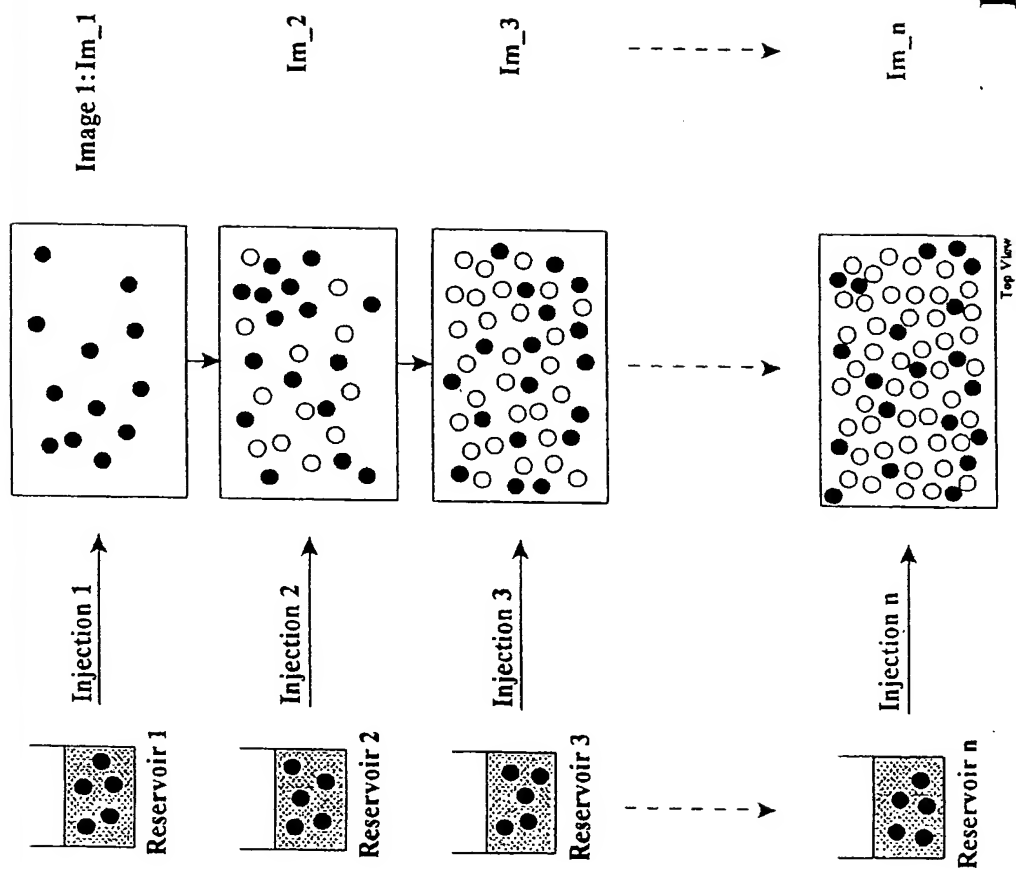


Figure 23

SEQUENTIAL INJECTION & LIGHT-CONTROLLED ARRAY PLACEMENT

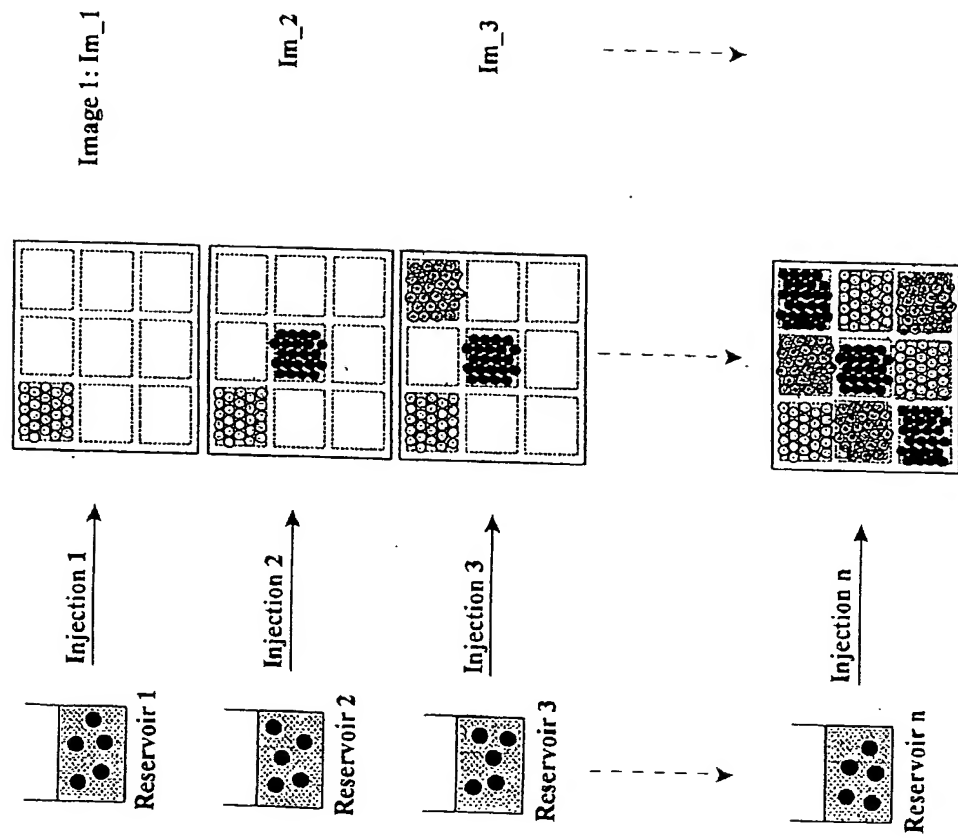


Figure 24

MACRO-TO-MICRO TRANSITION

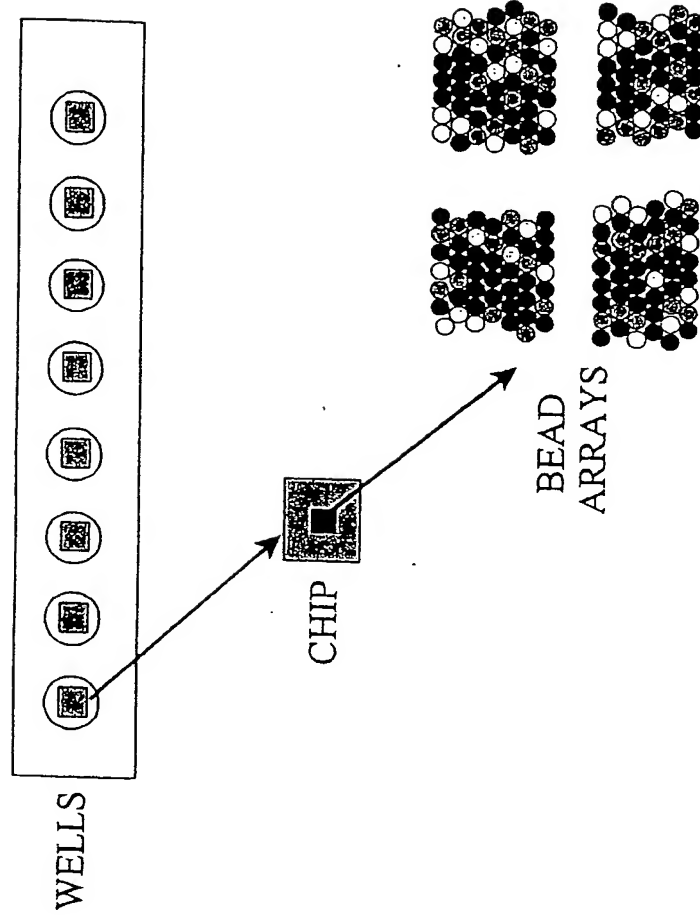
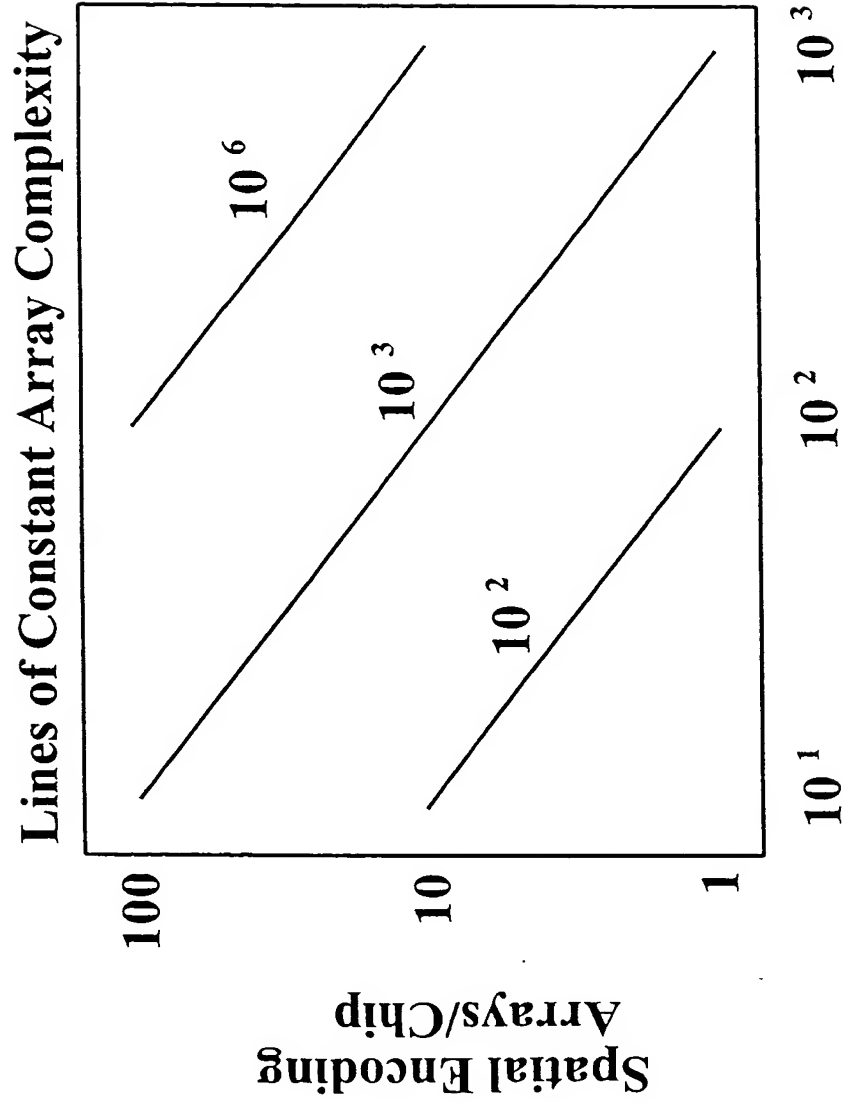


Figure 25a

ARRAY ENCODING



**Chemical Encoding
Codes/Array**

Figure 25b

ARRAY ENCODING

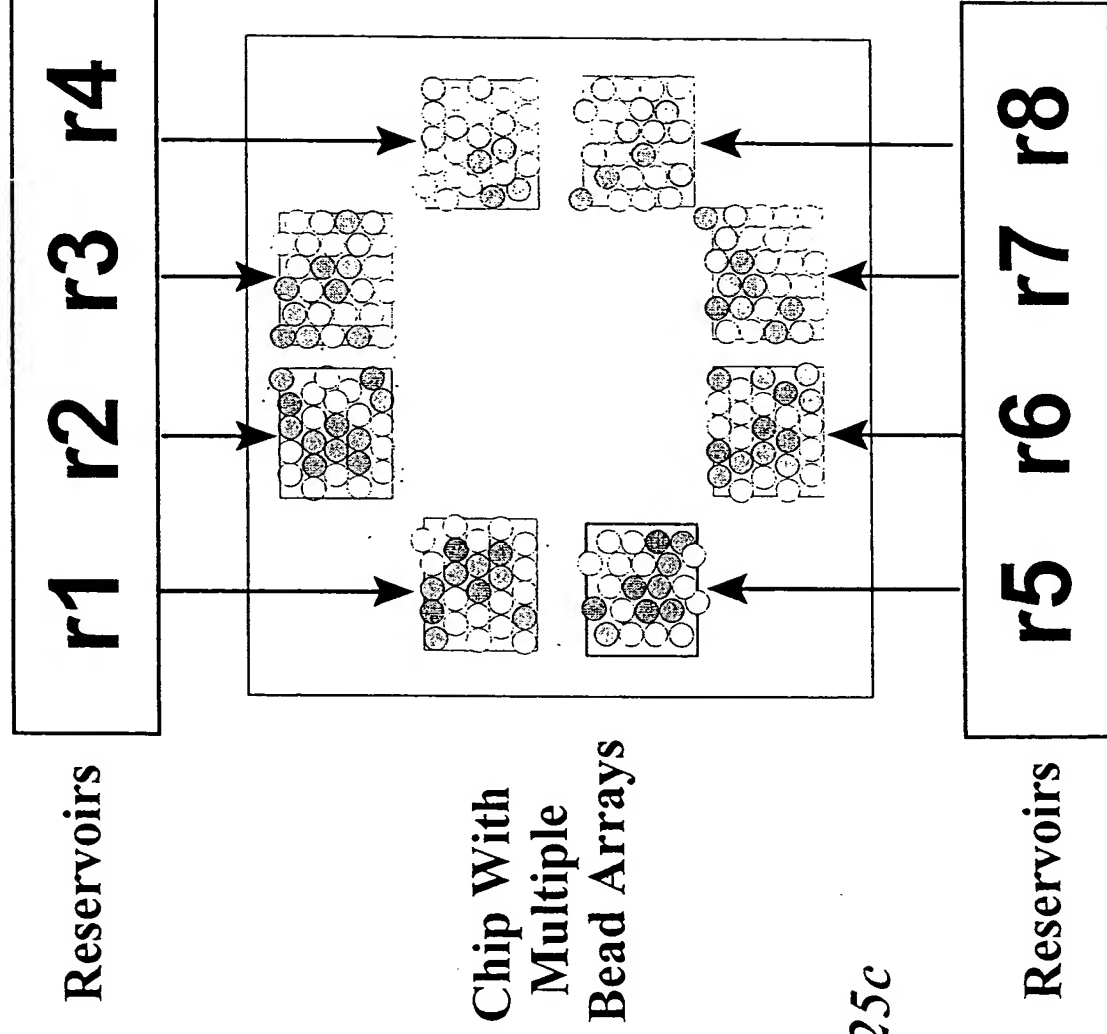


Figure 25c



SEQUENTIAL ASSEMBLY: “BANDING”

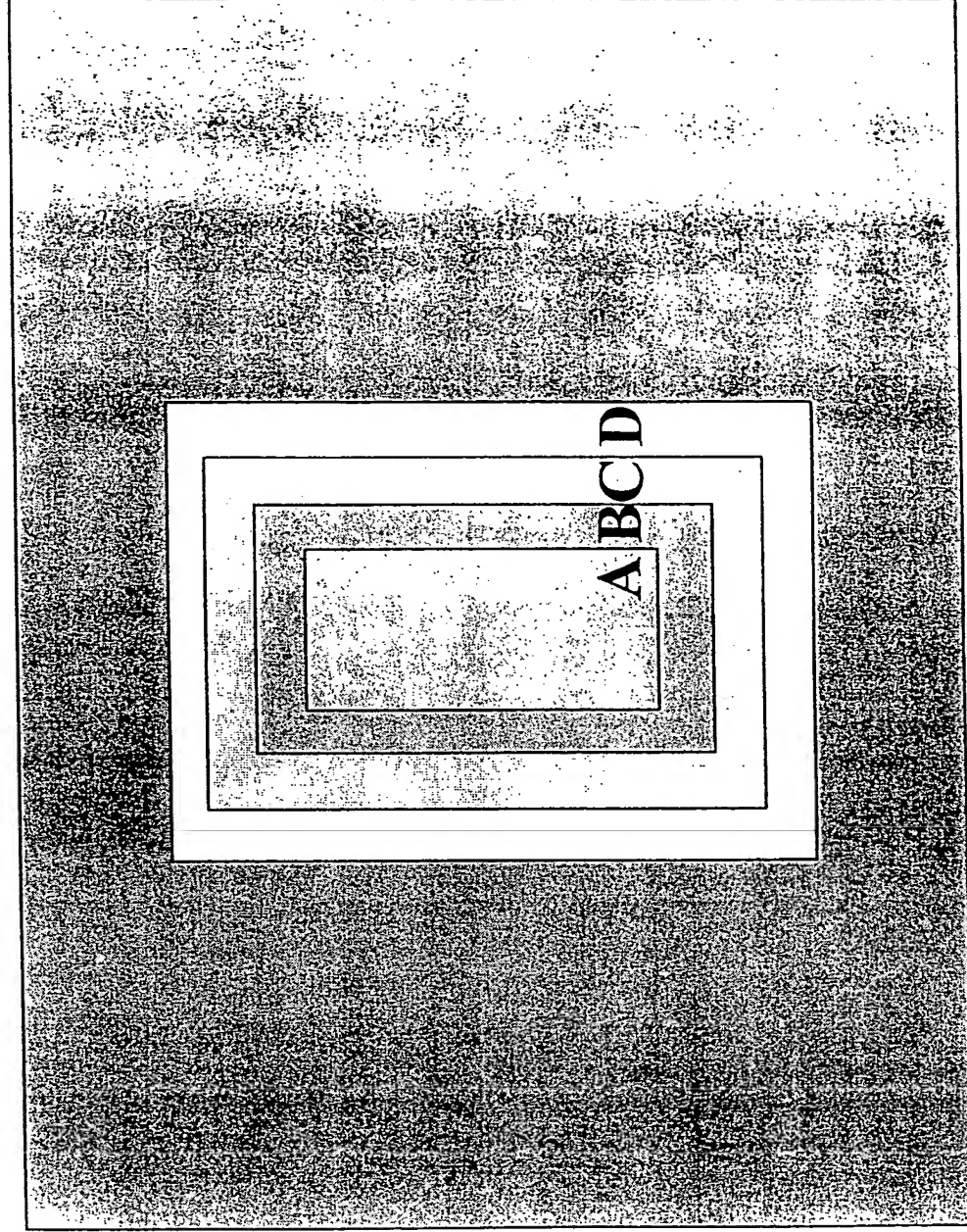


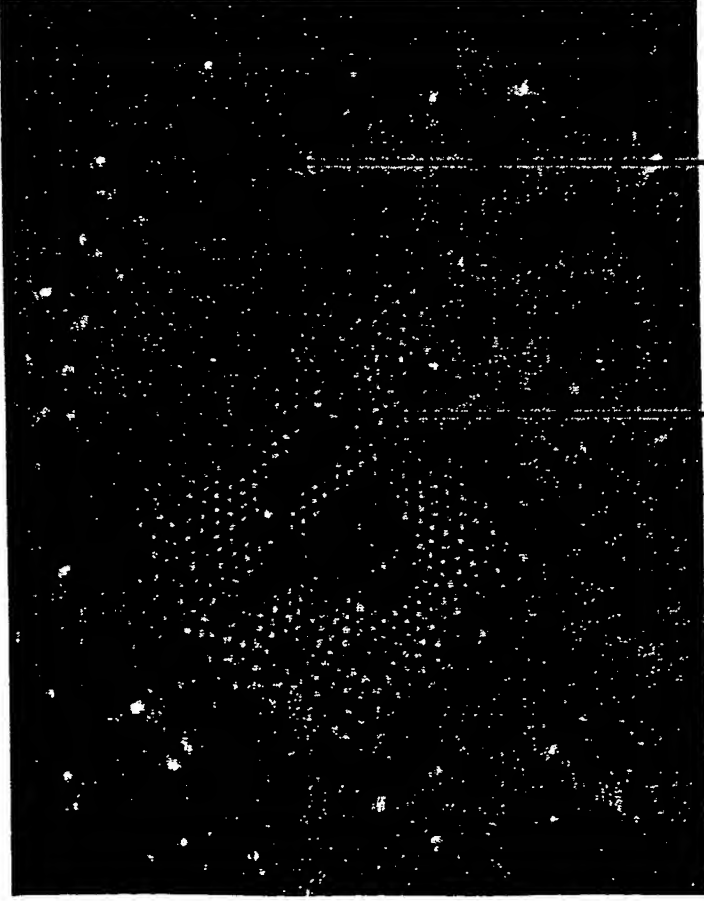
Figure 26a



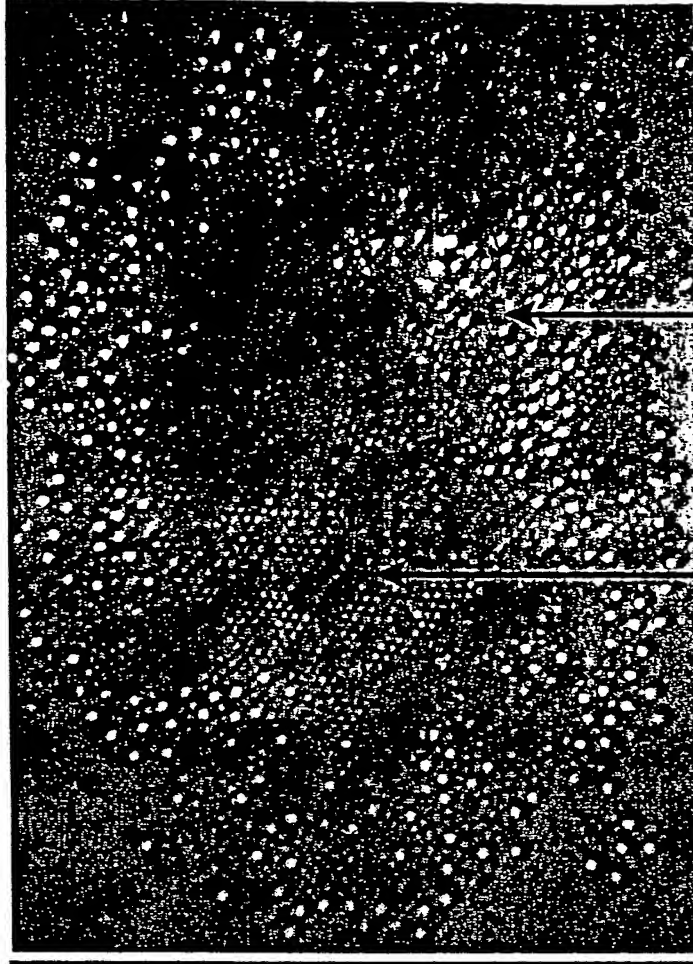
SEQUENTIAL ASSEMBLY: "BANDING"

Mixture of Two Particle Types

Brightfield Image



Darkfield Image



2.8 μm 5.5 μm

2.8 μm 5.5 μm

Figure 26b

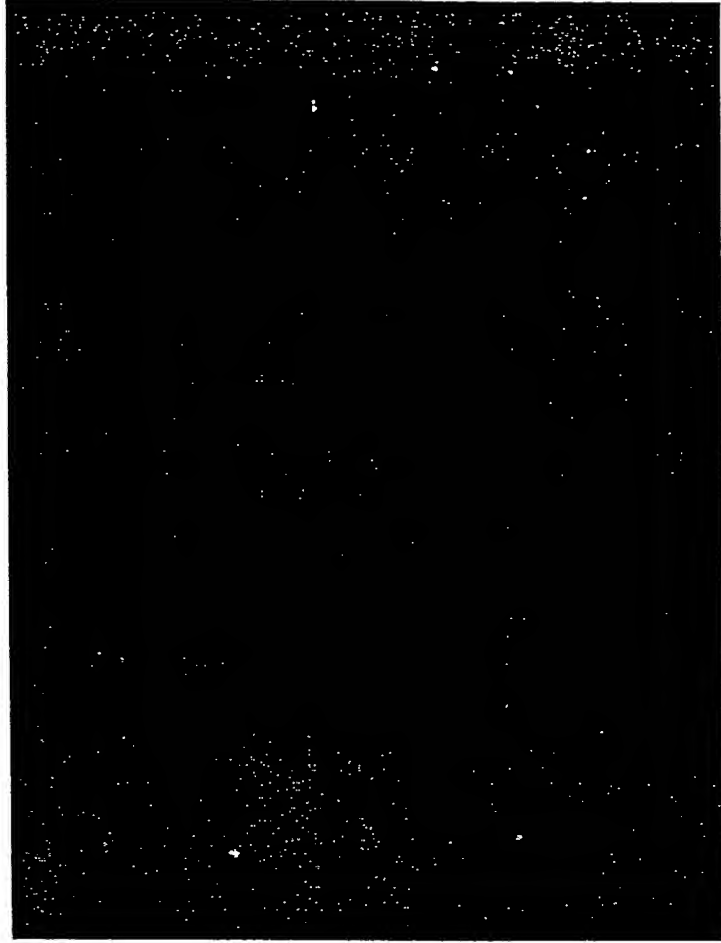
$$\begin{aligned}
\mathcal{L}(\mathbf{y}|\mathbf{X}) &= \prod_{i=1}^n \frac{1}{\sigma_i} \exp\left(-\frac{1}{2\sigma_i^2}(\mathbf{y}_i - \mathbf{X}_i^T \boldsymbol{\beta})^2\right) \\
&= \frac{1}{(2\pi)^{n/2}} \prod_{i=1}^n \exp\left(-\frac{1}{2\sigma_i^2}(\mathbf{y}_i - \mathbf{X}_i^T \boldsymbol{\beta})^2\right) \\
&= \frac{1}{(2\pi)^{n/2}} \exp\left(-\frac{1}{2} \sum_{i=1}^n \frac{(\mathbf{y}_i - \mathbf{X}_i^T \boldsymbol{\beta})^2}{\sigma_i^2}\right)
\end{aligned}$$


Figure 27



ARRAY OF RANDOM SUBARRAYS

A UNIQUE TWO-DIMENSIONAL BAR CODE

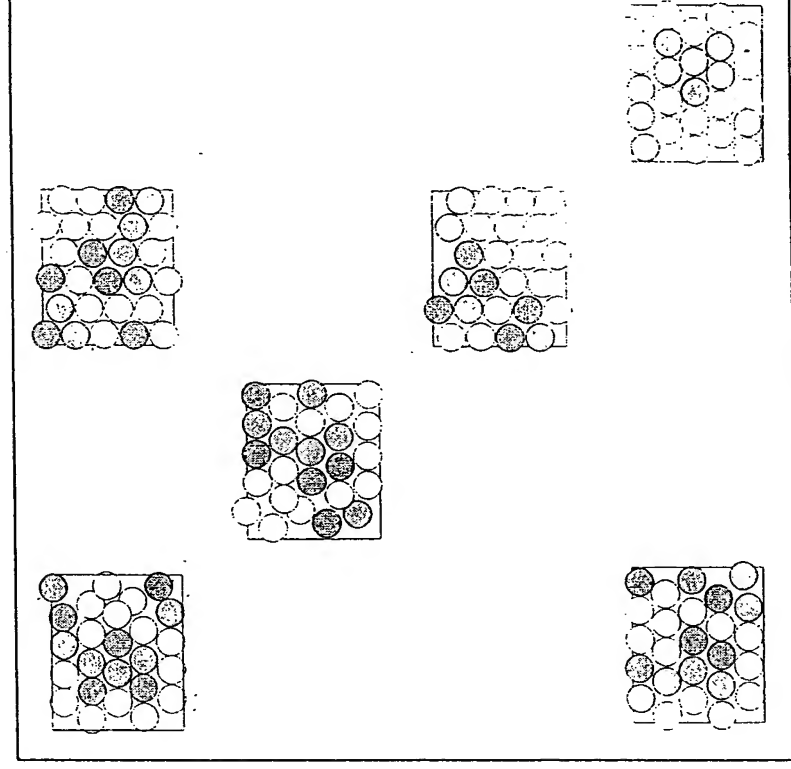


Figure 28



LIGHT-INDUCED FLUID FLOW

Figure 29

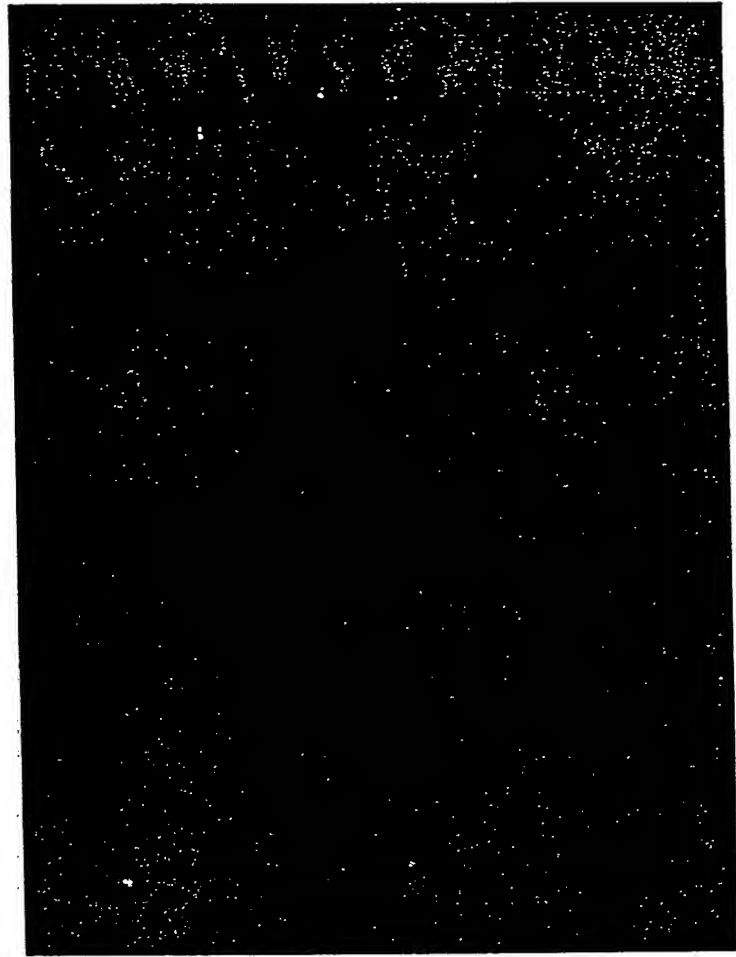


Figure 29